

## CLAIMS

1    1.    (Currently amended) A method of alloying incorporating a nanostructured chemical  
2    selected from the group consisting of POSS and POS into a fluoropolymer, comprising the step  
3    of compounding [[a]] the nanostructured chemical into the polymer fluoropolymer.

1    2.    (Currently amended) A method according to claim 1, wherein a mix of different plurality  
2    of nanostructured chemicals is compounded into the polymer.

1    3.    (Original) A method according to claim 1, wherein the fluoropolymer is in a physical  
2    state selected from the group consisting of oils, amorphous, semicrystalline, crystalline,  
3    elastomeric and rubber.

1    4.    (Original) A method according to claim 1, wherein the fluoropolymer contains a  
2    chemical sequence and related polymer microstructure.

1    5.    (Currently amended) A method according to claim 1, wherein the polymer fluoropolymer  
2    is a polymer coil, a polymer domain, a polymer chain, a polymer segment, or mixtures thereof.

1    6.    (Original) A method according to claim 1, wherein the nanostructured chemical  
2    reinforces the fluoropolymer at a molecular level.

1    7.    (Original) A method according to claim 1, wherein the compounding is nonreactive.

2    8.    (Original) A method according to claim 1, wherein the compounding is reactive.

1       9. (Currently amended) A method according to claim 1, wherein a physical property of the  
2       fluoropolymer is improved as a result of incorporating the nanostructured chemical into the  
3       **polymer fluoropolymer**.

1       10. (Currently amended) A method according to claim 9, wherein the physical property  
2       **comprises a member is** selected from the group consisting of adhesion to a polymeric surface,  
3       adhesion to a composite surface, adhesion to a metal surface, water repellency, density, low  
4       dielectric constant, thermal conductivity, glass transition, viscosity, melt transition, storage  
5       modulus, relaxation, stress transfer, abrasion resistance, fire resistance, biological compatibility,  
6       gas permeability, porosity, and optical quality.

1       11. (Currently amended) A method according to claim 1, wherein the compounding step is  
2       accomplished by blending the nanostructured chemical into the **polymer fluoropolymer**.

1       12. (Currently amended) A method according to claim [[1]] **11**, wherein the compounding step  
2       is accomplished by a blending process selected from the group consisting of melt blending, dry  
3       blending, and solution blending.

1       13. (Original) A method according to claim 1, wherein the nanostructured chemical functions  
2       as a plasticizer.

1       14. (Original) A method according to claim 1, wherein the nanostructured chemical functions  
2       as a filler.

1       15. (Currently amended) A method according to claim 1, wherein the nanostructured chemical  
2       is selectively compounded into the **polymer fluoropolymer** such that the nanostructured chemical  
3       is incorporated into a predetermined region within the **polymer fluoropolymer**.

1    16. (Currently amended) A method according to claim 1, wherein A method of controlling the  
2    molecular motion of a polymer, fluoropolymer is controlled by comprising compounding [[a]]  
3    the nanostructured chemical into the polymer fluoropolymer.

1    17. (Currently amended) A method according to claim 16, wherein a time dependent property  
2    is enhanced as a result of compounding the nanostructured chemical into the polymer  
3    fluoropolymer.

1    18. (Original) A method according to claim 17, wherein the time dependent property is  
2    selected from the group consisting of T<sub>g</sub>, HDT, modulus, creep, set, permeability, erosion  
3    resistance, abrasion resistance.

1    19. (Currently amended) A method according to claim 15, wherein of reinforcing a selected  
2    region of a polymer, the method comprising: compounding a the nanostructured chemical with  
3    has chemical properties compatible with the selected predetermined region of the polymer  
4    fluoropolymer, whereby the compounding reinforces the fluoropolymer.

1    20. (Cancelled)